ISOTOPICS

The Cleveland Section of the American Chemical Society

Volume 94 Issue 2 February 2018

On Deck:

Wed. March, 28 2018

Meeting in Miniature
Oberlin College

Cleveland ACS Officers

Isotopics

Editor:
Geneviève Sauvé
Case Western Reserve U.
(216) 368-3665
genevieve.sauve@case.edu

Cleveland Section Web Site:
http://www.csuohio.edu/sciences/dept/cleveland_acs/

February Meeting Notice

Joint Meeting with The Society of Applied Spectroscopy (SAS)

Wednesday, Feb. 28, 2018

The Ukrainian Museum--Archives

1202 Kenilworth Avenue Cleveland, OH 44113

http://www.umacleveland.org/

4:30 pm	Executive Committee Meeting
5:30 pm	Social Networking
6:00 pm	Dinner
7:00 pm	Presentation

"Exploiting Fact, Fiction, and Fear: The Chernobyl Accident Revisited"

by Dr. Alexander Roman Sich

Abstract: The currently accepted Soviet account of accident mitigation efforts during the early days following the initial destruction of Chernobyl Unit-4 in a desperate attempt to contain radioactivity releases will be discussed. These actions were either not implemented as portrayed by the Soviets or were ineffective. Secondly, Dr. Sich will discuss his peer-reviewed published accounts of what actually happened to Unit-4 after it was destroyed—a technical narrative that remains unchallenged to this day. Both these issues were raised by Dr. Sich in an April 2011 opinion piece he published in the Wall Street Journal calling for a reassessment.

Additionally, Dr. Sich will discuss and take questions on the Shelter Implementation Plan, the Iranian Bushehr nuclear power units as connected to non-proliferation, calls for a renewal of nuclear weapons in Ukraine, and the Fukushima accident.

DINNER RESERVATIONS REQUESTED:

Please RSVP for the dinner by emailing to Michael Levy (mlevy@envantage.com). with the names in your party by Friday, February 23, 2018. Vegetarian options will be available. The ACS accepts credit card payments, cash, and/or checks made out to "Cleveland ACS." The cost is $20 for members and guests; $10 for retirees or unemployed; and $5 for students.

Speaker Biography:

In February 1994 Alexander Roman Sich was awarded a Ph.D. in nuclear engineering from the Massachusetts Institute of Technology on a broad reappraisal and forensic reconstruction of the so-called "Active Phase" (high-release period) of the Chernobyl Accident. Dr. Sich spent a unique one and one-half years (Nov 91 – Apr 93) living in the town of Chernobyl as the first western researcher permitted to work closely with members of the Chernobyl Complex Expedition—the small group of Russian and Ukrainian scientists studying the remains of the ill-fated Unit-4 reactor.

In his dissertation, Dr. Sich confirmed earlier suspicions by western experts that more radioactivity was released as a result of the accident than claimed by the Soviets in August 1986 at the IAEA-sponsored meeting of experts in Vienna. Most surprising was that Soviet interventions during the early days following the accident (in a desperate attempt to contain radioactivity releases) were generally ineffective. Moreover, Dr. Sich concluded that while the core experienced a full meltdown, it subsequently solidified by itself (i.e., no direct human intervention)—halting the release of radioactivity and doing little damage to the lower regions of the reactor building. While unfortunate this occurred on the level of an industrial nuclear power core meltdown, it nonetheless demonstrated that a so-called "China Syndrome" was impossible.

Dr. Sich also has a B.S. in nuclear engineering (minor in physics) from Rensselaer Polytechnic Institute, an M.A. from Harvard University in Soviet Studies, and an M.A. from Holy Apostles College and Seminary in Philosophy (Thomism). Dr. Sich as worked for the Nuclear Safety Account of the European Bank for Reconstruction and Development, for Pacific Northwest National Laboratory—mainly in Ukraine as Head of the Department of Energy's nuclear safety office in Kyiv and as a Senior Project Coordinator for the Shelter Implementation Plan at Chornobyl—Senior Specialist at the Science and Technology Center in Ukraine, and Professor of Physics and Pre-engineering at Franciscan University of Steubenville. Dr. Sich was also a Fulbright Senior Teaching and Research Fellow at the Ukrainian Catholic University, and has worked a total of over 14 years abroad. Dr. Sich and his wife have seven children and two grand children.

Directions and Parking:

The Cleveland Ukrainian Museum Archives (*1202 Kenilworth Avenue Cleveland, OH 44113*) is conveniently located in the heart of Cleveland's historic Tremont neighborhood. Parking is available in the lot adjacent to the museum. Street parking is also available.

Correction for Last Month's Article "From the Desk of the Past Chair":

Greetings Colleagues. I neglected to list David Orosz as being newly elected to serve as one of our Trustees in a three year term. The complete list of duly elected officers serving on the 2018 Executive committee has been updated and is available on our webpage.

Call for Abstracts: 2018 Meeting in Miniature

Dear faculty and students,

The Meeting-in-Miniature (MIM) of the Cleveland Section of the ACS has become a much-anticipated event in the calendar of many local undergraduate and graduate researchers. MIM is a great way to showcase your work and is effective preparation for presenting at an ACS national meeting or regional meetings. It is also a great opportunity to meet chemistry and biochemistry faculty and students from neighboring colleges and universities.

MIM 2018 will be held on the afternoon and evening of Wednesday 28 March 2018 at Oberlin College in Oberlin OH. Registration for the meeting is free. The half-day program will begin

in the mid-afternoon with parallel sessions of 20-min talks (including 5 min of Q&A) with a plenary lecture by Emily Pentzer of Case Western Reserve University and dinner to follow in the new Hotel at Oberlin. We look forward to a large turnout and a great meeting.

Meeting registration and submission of abstracts to be considered for oral presentation is now open. Registration and abstract submission should be performed online using the link https://oberlin.qualtrics.com/jfe/form/SV_4SzkGHgmPZYdBYh. Abstracts have a 200-word limit and required information includes: title of presentation, presenting author, mentor of presenting author, department and university affiliation, email of presenting author, category (undergraduate, graduate, other), division (analytical, biochemistry, inorganic/materials, organic, physical), and abstract. The deadline for registration and submission of abstracts is 1 March 2018. Send any question or concern to Zoey Hua at zhua@oberlin.edu. Meeting details as they develop will be posted at the Cleveland ACS.

Faculty mentors and other chemistry professionals are invited to serve as judges and session chairs for the oral presentations. Volunteers should email Rob Thompson at rthompso@oberlin.edu with the subject "MIM volunteer".

Sincerely,
Oberlin College Department of Chemistry and Biochemistry

Announcement: The 50th Annual Chemistry Olympiad

Local Exam Saturday March 17, 2018

We are pleased to announce that The Cleveland Section of The American Chemical Society (ACS) will be participating in the 2018 U.S. National Chemistry Olympiad (USNCO). The primary goals of this program are to stimulate interest and achievement in chemistry among high school students and to provide recognition of outstanding young chemistry students, teachers, and schools.

It is the responsibility of the Cleveland section to nominate students to take the USNCO National Examination. In order to identify these students, a preliminary, local Chemistry Olympiad will be conducted. The exam consists of 70 multiple choice questions. Past local exams, national exams, and lab practicals with answer keys can be found here.

Teachers please Register Your Students by March 9, 2018. Registration is now open for the Local Chemistry Olympiad.
Date : Saturday, March 17, 2018
Time : 8:30 AM – 11:30 AM
Place : Cleveland State University, Room to be Announced
Schedule: 8:30 – 9:00 AM. Registration & Refreshments (Donuts and Juice)
9:00 A.M. – 11:30 AM Examination (ACS Multiple Choice)
Preparation: Please bring the following:
Non-Programmable Calculator
(Cell phones or graphing/programmable calculators will NOT be permitted)
Number 2 pencils and eraser

A school may enter a total of 12 students for participation in the Local Chemistry Olympiad. A $25.00 fee permits a school to enter up to four students and an additional eight students may be added to the competition for an additional cost of $3.00 per student. Checks should be made out to The American Chemical Society
Checks can be mailed to:

Dr. Anne O'Connor
Department of Chemistry
Cleveland State University
2121 Euclid Avenue
Cleveland, OH 44115

If I have not received your check by March 17, you will need to pay the registration fees(cash or check) during registration on March 17th. We do not accept credit card payments.

Results of the local examination will be sent to participating teachers by e-mail. Based on these

results, the top eleven students, with a maximum of two students from the same school, will have the privilege of taking the National Chemistry Olympiad Examination and Practical. The National Exam will be administered on Friday, April 20, 2018 at Cleveland State University. See details online for the Rules and Eligibility for Participation in the 2018 National Chemistry Olympiad.

Following the National Exam and Practical, twenty students from the U.S. will be selected to attend a two-week training camp at the U.S. Air Force Academy, June 5 to June 20, to prepare for the international competition. Based on performance at the camp, four students will be selected to represent the United States in the 50th International Chemistry Olympiad in Bratislava, Slovakia and Prague, Czech Republic, July 19-29, 2018.

Volunteering Opportunity: be a judge at NEOSEF this year!

Every year, your ACS local section gives special awards to outstanding students in grades 7-12 who participate in the Chemistry Category at the Northeastern Ohio Science and Engineering Fair (NEOSEF). To select the award winners amongst ~100 projects, we need volunteer judges with a minimum of a Bacchelor degree in Chemistry. Judging involves talking with the students, which is very rewarding. This year, NEOSEF is at Cleveland State University March 13, 2018. The time commitment is a few hours in the afternoon (2:30 pm –6 :00 pm), If you are interested in judging, please contact Genevieve Sauve at genevieve.sauve@case.edu.

Purified cashew proteins lend insight into allergic reactions

Journal of Agricultural and Food Chemistry

It's well known that peanuts can cause severe reactions in people who are allergic, but research suggests that the risk of developing a life-threatening reaction could be higher for those allergic to cashews. Now scientists have come up with a fast and simple method to purify the three main cashew allergens to help better grasp how they work and their effects on people. Their report appears in ACS' *Journal of Agricultural and Food Chemistry*.

Allergies to tree nuts and peanuts can cause mild symptoms, such as hives and itchy eyes. But some people who are allergic experience anaphylaxis, a life-threatening reaction that includes shortness of breath, swelling, dizziness and other symptoms. Scientists have identified three proteins associated with cashew allergies, but no one had isolated them with a high degree of purity or characterized them. Doing so, however, would help identify which specific allergen people react to, how the proteins might cross react with other allergens and potentially how to treat the allergy. Harry J. Wichers and colleagues decided tackle this challenge.

The researchers used three different methods — precipitation, ultrafiltration and gel filtration chromatography — to purify the three main cashew allergens. They then identified the proteins' subunits. Additionally, testing found a difference in how allergens bound to immunoglobulin E, an allergen-binding antibody, in Dutch children and American adults, shoring up previous suggestions that geography and age can play a role in allergies. Researchers say further studies can build on these results to analyze allergen structure, cashew varieties and the stability of proteins during processing.

The authors acknowledge funding from the Technology Foundation STW, Stichting Voedselallergie, Siemens Healthcare, HAL Allergy, Intersnack Nederland B.V., ALK-Abello B.V., and the Nederlands Anafylaxis Netwerk.